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THEORY OF VITALITY AND ITS RELATIONS TO MATERIA MEDICA.

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UNDER this title, I propose to call your attention to the philosophy involved in the *modus operandi* of medicines. I do not propose to refer to all of the details connected therewith as principles involved; in fact, many very important philosophical problems must be passed by without notice, as time will admit of but little more than a reference to the leading principles.

In pursuing the duties of our selected avocation, we are required to master a certain amount of knowledge entitled theory and practice. There is, at the present day, much distrust relative to the applicability of many of our theories that help to make up the aggregate of our medical education.

I remember an expression made by Paul Chadbourne, Professor of Chemistry at that time in Berkshire Medical College. In addressing the students on the accuracy of our knowledge of chemical science, he remarked that "what you learn in this room you are to keep forever, but what you learn up stairs (which was the room occupied by the Professor of Theory and Practice) you will have to learn all over again, every ten years, so uncertain are the theories that govern our practice." I think we all endorse those sentiments more or less, which is equivalent to admitting that our thoughts are not always in harmony with the philosophy of cause and effect; or, in other words, our early ideas are not all true ideas. There is an individual and professional pride that chooses not to always confess, to each other, or to the public, that there is much possibility that we are very far from correct in the theories we choose to adhere to; this is very natural, for our prosperity and influence are based on the presumed accuracy of our knowledge. It is right that we should have this pride, and it is both right and very important that we should possess what we profess. It is rational to assume that there is a reason for all things, and that if we possessed a *correct* theory of the practice of medicine there would be a permanency of thought; and, also, that there can exist but one true code of

fundamental principles involved in a true science of medicine. On this occasion, it will be harmless to indulge our reason for a brief time and consider whether all of our doctrines are consistent, and, by thus investigating the subject, it is not prejudice but principle that belongs to science; and it is not our duty to ask if it is pleasing or palatable, but simply if it is true.

If we admit that the science of medicine is not completely unfolded, and that more tenable premises are desirable, we must also admit, if this essay is unavailing, that the object is certainly commendable to direct our thoughts in pursuit of a better knowledge of those forces we call vital, which we are required to aid and modify in the treatment of disease. Thus, feeling that there is a sufficient cause for reverting to this subject, I will not assume that my doctrine is infallible, but present my views in that manner which to me seems consistent. In order to obtain a correct starting point, we will trace back what little we know about this universe to its ultimate condition, to that remote beginning behind which our special sensibility fails to grasp an idea. And on this first page of nature's book we find that beginning summed up in a power called force, and in elements whose physical properties we variously describe. These several forces act on the elements, the elements do not act on force. Set this down as a first principle, and whenever you get into a theoretical obscurity go back to first principles, to a principle about which there can be no possibility of a doubt. Whenever we can advance one step in perfect harmony with this interpretation, it is well to move onward, and we can with much assurance accept the interpretation that all the elements are acted upon by chemical force, and only a limited number, less than twenty, are acted upon by vital force, in that synthesis that gives form to vegetable and animal organisms.

Thus, we have one grand distinction of the application of those two forces; one, the chemical, acts on all the elements to produce forms and render forms formless, while the vital acts on only a limited number for the purpose of creating forms, and never renders them formless, the chemical force undoing what the vital had previously done. I repeat, that vital force acts on only a limited number of elements for the purpose of creating forms, but acts in relation to all elements for a definite specific purpose that will be considered in due time.

The doctrine of physiology is really the subject taught of the various duties that are performed by this vital force in the normal play of all the functions; yet many medical writers inform us of the manner which food acts on the human system, how milk acts on the stomach, and various other nutritive articles act on the different parts of our organism, while the fact is, instead of nutritive material acting it is merely passive, and is acted upon by, and becomes a part of, the organic body.

This same force removes from our bodies the worn-out tissue. Directed by instinct, it encounters another struggle, that is accomplished without the aid of our wisdom; and this struggle is termed *vis medicatrix naturæ.*

What are we to understand by it, and what does this power do? In all ages, there has been a recognition of a power, on the part of organic life, to manifest an ability, limited in extent, to preserve its own individual organism. Therefore we must concede this power, for we have reason for so doing, and attribute to it the governing principle, termed instinct, but not reason. This law of special organic vital instinct affords a text for volumes of thought; yet, on this occasion, we have only time to refer to it.

We will consider the ability of this force to construct our organism out of compounds whose elements are organic, and to remove the waste material, repair mechanical injuries, and exert special efforts to eject foreign material. It is rational that there should be endowed, to the ability of organic power, a *vis medicatrix naturæ;* otherwise, unobserved by our special senses, foreign material would, in time and by accident, so fill up the channels of our organism that mechanical impediments would prematurely terminate our mortal career. Thus comes this wise provision on the part of organic instinct to recognize the difference between food and those substances the presence of which is detrimental to the well-being of our organism, and to manifest an inherent power to eject, by vomiting, purging and sweating, those substances not proper for assimilation.

Thus far, we contend that vital force has, by its instinctive power, acted on the food, with a view to self-preservation, an action which we call physiological; and also this same force, with a view to self-preservation, has ejected foreign material, an action which we call pathological. This important and immutable instinct that presides over the organic being has no object in view but self-preservation; its ordained duty, assigned by the Ruler of the universe, was just that, nothing more, nothing less. And just how this force behaves, under all circumstances, comprises the great fundamental principle and basis of medical science.

What is the difference in principle, or philosophical distinction, between pathological action, the *vis medicatrix naturæ,* and the so-called action or *modus operandi* of medicines? We will introduce a problem for consideration, by supposing a boy has swallowed a few buckthorn berries. Do the berries act on the bowels, or do the bowels act on the berries? What is the principle involved? Do the berries act by an inherent power of their own? If so, do they act on the structure of the bowels, or on the function of the bowels? We have no knowledge of a change of structure; therefore, we infer that, if they acted in any manner, they must have acted on the function, for that function was accelerated and made violent. Therefore, if the berries acted on the function, we ask what

is function? It is merely action; consequently, they acted on action, which is a poor termination of philosophical language. We admit that the berries occasioned an action, yet they have no inherent power, but are the products of an inherent power peculiar to vegetable life? So is food the product of inherent power, peculiar to vegetable life; and these products are acted upon by the life force of our organism. One is appropriated harmoniously, and the other expelled more or less violently.

It may be said, that this vital theory opposes our established theory of the action of our medicines, and that it does away with medical properties, and so our drugs become inert and useless. We confess that it does oppose our established theory of the action of medicines, but we deny that it interferes with our employment and use of medicines. Does it do away with medical properties, and render our drugs inert? I ask what law of nature, what experimental procedure enables us to determine the existence of a medical property? What is a medical property? Prof. Wood, of the University of Pennsylvania, and assistant author of the United States Dispensatory, defines medicines to be "substances capable of producing, as an ordinary result, modifications of the vital functions, by their own inherent power." This *inherent power* of the medicine, so called, is the medical property that acts on the skin, the stomach, the bowels, the circulation. Thus, a medical property, according to this philosophy, is an inherent power of the medicine to act; and that particular disturbance occasioned suggests the special name of property.

We claim that the term inherent power, as applied to medicine, is an error of interpretation, and that the inherent power is all on the other side. Therefore if a medical property is this certain attributed power, by virtue of medical philosophy, and this philosophy is erroneous, and in the medicine there is no power, it is well to again ask, what is a medical property in the language of the natural philosophy of vital force? Let us go back and retrace our premises, systematically, yet briefly; we will make three divisions of elements, compounds, or material, to and with which the vital forces behave as follows:—The first class are nutrients, and are acted on for the purpose of being assimilated. The second class consist of material that is termed by the profession, inert; that is, it neither contributes nutriment nor, by its presence, occasions any special vital disturbance in any direction, but merely abides the course of time and becomes eliminated by the undisturbed depurative functions. The third class comprises that vast array of material called medicine and poison, which, by its presence, occasions special vital efforts, strictly analogous with the principle involved in *vis medicatrix naturæ*. The different manner in which vital force behaves in relation to this class affords that knowledge by which we know the use of any particular medicine. The degree of incompatibility is modified by the quantity, and may be, instead of mildly alterative, violently poisonous. There-

force, a medical property, when placed under the microscope of natural philosophy, may properly be defined thus: A substance, the presence of which within the jurisdiction of the vital force, is so incompatible with the required wants of physiological purposes, that a special effort of vital force is manifested, with a view to expel it.

There is at this time another question that suggests itself to our notice; if medicines have no inherent power, by what law are we to claim their utility in the treatment of disease? As the profession have no established theory of disease, I will omit the use of the term, disease, and confine my language to vital force. Let me again quote from Prof. Wood's definition of medicines:—"Substances capable of producing, as an ordinary result, modification of the vital forces." We have previously referred to the organic vital force as being involuntary and endowed with instinct only; therefore, this instinctive force may do an injury by its violence, it may act very injudiciously, even with positive detriment to the best interests of the tabernacle it desires to defend or maintain. This fact, this instinct without wisdom, creates the necessity for a medical profession, to develope our reason and to enable us to comprehend when it is proper to modify vital force or function, with a view to prolonging life; and medicines afford the means whereby we aid and direct vital force. This term, inherent power, as applied to medicine, is the language or interpretation of appearances, but not the language of philosophical truth.

It may be asked, what difference does it make whether one or the other acts? I will say, if we have a medical science founded on immutable principles of natural law (and it must be so founded, otherwise it is no science), and yet it makes no difference whether we base our calculations for a result on an inherent power residing in the medicine, or in the human system, then we must inevitably deteriorate into a state of degenerate philosophers of professional insignificance, to compete with quacks and patent nostrum venders. This inherent power is either on one side or the other; its source is not interchangeable; and when studied with the idea that it is latent in the medicine, the whole subject becomes involved in a medley of crude thoughts that tend to empiricism. When studied with the idea that it is latent in the human system, our theories become illuminated and our ideas transparent, and we are possessed of a quiet assurance that we are travelling on the highway of science. To me, it seems that there is no problem in the annals of science so important as a correct understanding of the source and law of this inherent power.

It may be advocated that the long time during which this doctrine of inherent power in medicine has been inculcated, and the vast array of talent that has already concurred in its adoption, is sufficient to place it beyond all controversy, and that we must accept it as a correct scientific interpretation. This is a problem of natural law

which conventional approvals neither do nor undo; yet we must admit that ages of thought in that channel, and theories that lie upon the book-shelves of every physician have instituted ideas and given modes to our thinking. Moreover, the very thoughts that emanate from our schools of science largely predominate and give color to the national mind, that makes up, moulds and controls that sense of duty which we call belief.

The adoption of the theory that there is an inherent power in medicine has already had a blighting effect upon the influence of the profession. It has taught the masses that the great secret of success was hidden in the mysterious potion; and if the application of this power failed, we must search for other inherent powers in new compounds. Thus, to-day, the great leading idea, in the profession and out of the profession, is to find a new compound, with new inherent powers, which shall act on our organic system. No matter what the physician thinks to-day about the soundness of this philosophy of inherent power, the multitude are firm believers in it, and in that belief quackery finds its spacious fields of labor, and the quack heralds all his medical properties to all the rest of mankind. The masses are all ready to believe it and to try it; and they sing praise to his name, for the indefatigable labors and unfathomable research that have brought to the surface this wonderful inherent power of eradicating disease; and, in the meantime, they berate the regular physician for his stupidity. It is natural that the people should believe this quackery more or less, for medical schools and medical men have been talking and training the people into this channel of thought, and the legitimate result is that quackery must succeed. Thousands whom we call intelligent people will place themselves, unhesitatingly, under the treatment of the most ignorant quack and confess their knowledge of his ignorance; and yet they defend the man of their choice by the argument that his medicines have new and wonderful powers to eradicate disease. It is not the man, but the medicine that they believe in. And again, the prevailing opinion of a mysterious "inherent power" in alcoholic liquors that contributes to the well-being of the functions of organic life, and effectually performs, by virtue of its ability, wonderful exploits in removing the causes of disease, to the influence of this opinion among the people is due a conscientious purpose among physicians which forbids giving aid to any means for the suppression of intemperance, and which, in fact, becomes the most formidable barrier against reform in the use of intoxicating liquors as a beverage. Moralists tell us that there is no question before the American people to-day that is of so much importance as the temperance question. It seems to me that there must be something wrong in the interpretation of a science when its doctrines conflict with the harmonious development of a well-governed people.

But let us take the other side of the question, and adopt the theo-

ry that vital force is always the "inherent power," in health and disease; let us turn our attention to the study of vital force, and how it governs itself in self-limited disease, learn the full force of the term "instinct," which legitimately belongs to this vital force, which in itself is a subject freighted with more wisdom than becomes the lot of any quack to comprehend. Let us become familiar with vital force as manifested by the three vital properties, contractility, sensation and sensibility, and with the law of sensation when manifested under the term irritability; with its toleration of long-continued medicines, and how it acts when the causes are relatively large or small, and just where reason should interfere to modify, with medicines, this force for the well-being of the patient. Let us comprehend that vital force, acting in relation to things abnormal, in its peculiar manner, furnishes us a problem which, when solved, gives us an ability to maintain a rational *theory of disease.* Let us learn to expect no more of medicine than the law of its usefulness; to rate it at its real value. We shall then find the medical profession elevated to a position that commands respect and influence for the knowledge it possesses of the great law of force, as ordained by the hand of our Creator, a knowledge which becomes a specialty of acquired wisdom, above the reach of quacks, and which carries with it an influence that precludes the possibility of any reposing of the people's faith upon a quack doctor, any more than upon a quack chemist or a quack astronomer.

Surgery of the Aborigines.—The following occurs in an address on surgery, before the Canadian Medical Association, by Dr. W. H. Hingston:—

The aborigines had their surgery—simple but effective—to which their usurpers were sometimes forced to have recourse. Contused wounds and bruises were treated by cold douches from springs and running streams; and suppurating wounds with the bark of the mucilaginous slippery elm (Ulmus flava), and basswood (Silia), and the resinous bark of the tamarac (Larix americana)—all excellent emollient and stimulant cataplasms; and ulcers were stimulated to granulation by the inner wood and berry of the juniper (genus juniperus). They reduced dislocations by main force, and also, it would appear, by a rotary method, which seems somewhat like that introduced to the profession by that distinguished American surgeon, Nathan Smith. Fractures (which rarely occurred among them) were carefully set, and splints of cedar or broom, ingeniously padded by the squaws with leaves or grass, were bound upon the limb with withes of the young birch (genus Batula); and amputations were performed at the joints with knives of flint or jasper (and in some places of copper), polished and keen as steel*—and spouting vessels were seared, and hæmorrhage arrested with stones heated to redness. These practices are still continued among the tribes far removed in the interior.—*Canada Medical and Surgical Journal.*

* The preparation of these instruments was oftentimes the work of years.

Progress in Medicine.

REPORT ON MEDICAL CHEMISTRY.

By E. S. Wood, M. D.

(Concluded from page 11.)

Toxicology.

Detection and Action of the Metallic Poisons.—J. L. Verryken has published *(Jahresbericht über die Fortschritte der Pharmacognosie, Pharmacie und Toxicologie,* 1873) a large number of experiments and studies concerning the action of the metallic poisons upon the system, and their detection when mixed with organic substances, and arrives at the following conclusions, based upon purely chemical considerations, concerning the changes which they undergo in the system.

First, that the metallic poisons combine with the animal tissues with which they come in contact, an albuminate of the metallic oxide being formed.

Secondly, that that portion of the poison which gets into the blood unchanged, combines in the same manner with the albumen of the blood, and forms a compound analogous to the albuminates of calcium and magnesium, described by Fokker, and alluded to in the last semi-annual report.*

Thirdly, that these metallic albuminates are passed into the blood by endosmosis under the influence of electricity, and, in the same manner, from the blood get into the organs where they are deposited.

Verryken considers that these albuminates, when formed within the system, have the same composition as the precipitates formed by bringing the metallic salt in contact with albumen out of the body. Concerning the exact composition of these precipitates, he differs from many authorities, but agrees with Mulder. In the case of corrosive sublimate, for example, Orfila considered the precipitate formed with albumen to be a compound of albumen with calomel; Lassaigne, to be one of albumen with corrosive sublimate; Dorvault, of albumen with a sesquichloride of mercury, while Mulder and Verryken consider it to be one of albumen with mercuric oxide. The latter has made analyses of the precipitates produced by the different metallic salts with albumen, and has found them to have the following composition. The precipitate with corrosive sublimate has the formula HgO, C_{48} H_{36} N_6 O_{16}; with lead salts, 5 PbO, C_{48} H_{35} N_6 O_{16}; with copper salts, $3CuO$, C_{48} H_{36} N_6 O_{16}; with silver salts, 2 AgO, C_{48} H_{36} N_6 O_{15}; and with platinum salts, $5PtO$, C_{48} H_{35} N_6 O_{16}. All of these precipitates were obtained by adding the metallic salt in solution, drop by drop, to a solution of albumen, always being careful to keep the latter in excess, a very necessary precaution, since a mixture of the albuminate with a compound of albumen with the acid of the metallic salt added is thereby prevented. It was noticeable, also, that the precipitate had the same composition, whichever salt of the metal was used as the precipitating agent.

He was led to the third conclusion, that the passage of the metallic albuminate takes place by endosmosis under the influence of electricity, by the fact that a solution of albumen or gum can be made to pass

* Vide Journal, July 3, 1873, p. 6.

through animal membranes in a dialyzer or endosmometer in much greater quantity, if subjected to the action of the electric current, than under precisely similar circumstances if electricity be not used. Even oil passed through the membrane from an emulsion of oil and gum under the influence of the current, whereas no trace of it could be detected in the outer fluid if no electricity were applied. The electrodes were so arranged that the current passed from the outer to the inner fluid. Hence the endosmœsis of these usually non-endosmotic substances takes place under the influence of electricity, and most readily in the direction contrary to that of the electric current.

The author has also adopted a new method for the destruction of the organic matter in searching for metallic poisons in animal fluids and tissues, and criticizes the methods generally in use, especially that of Fresenius and Babo (by means of hydrochloric acid and the chlorate of potassium). The objections to this method are, that a portion of the poison, especially in the case of arsenic, is liable to be lost by the formation of volatile chlorides; that the resulting solution is not perfectly colorless; that the solution still contains a considerable quantity of organic matter; and that sulphuretted hydrogen or the sulphide of ammonium produces in this solution a precipitate which, in addition to the metallic sulphide, always contains organic sulphur compounds, from which it is often very difficult to separate the metallic sulphides.

He avoids these inconveniences by destroying the organic matter, by heating in an ignition tube, with a constant supply of free oxygen to the heated mass. The apparatus used is similar to that for elementary organic analysis. The advantages claimed for this method are, its simplicity, that there is absolutely no loss of material, and that a much smaller amount of material is necessary, only five or ten grammes, while with the ordinary methods one or two hundred grammes are required. By this method he has detected copper in an organic mixture, which contained only one part of the sulphate of copper in 40,000 of mixture, lead in ten grms. of a mixture containing one part of the acetate in 50,000 of substance, mercury which existed in the same proportion, and also arsenic and antimony in eight or ten grms. of a mixture containing only from $\frac{1}{20000}$ to $\frac{1}{50000}$ of arsenious acid and tartar emetic.

A modification of Marsh's apparatus is also recommended, the stopper of the flask being provided with three tubes instead of two. The third tube is intended to supply pure hydrogen gas from a gasometer. By this means, the size of the flame can be kept the same, and the air can be expelled from the apparatus much more rapidly.

Detection of Digitalin.—E. and G. Homolle (*Jahresbericht über die Fortschritte der Pharmacognosie, Pharmacie und Toxicologie*, 1873) contradict the statement made by Tardieu, that the chemist, by means of chemical tests alone, cannot state positively as to the presence of digitalin in animal tissues, but must rely upon the physiological test. They give a method for isolating it in a state of tolerable purity. This is a comparatively easy task, if we have a syrup, tincture, or extract to deal with, but is very difficult in the case of the contents of the stomach or other similar substance. On account of the impossibility of isolating digitalin in any quantity by means of Stas's process, the authors recommend that, in searching for the vegetable poisons, about one-half of the material at hand be examined by Stas's method, and the

rest reserved for the analysis for digitalin, if the other alkaloids are found absent. If, however, we have any reason to suspect the presence of digitalin, the largest portion of the material should at once be examined for it.

The test which is especially to be relied on, is the production of an emerald green color by means of hydrochloric acid,* and should be performed in the following manner. Upon a small particle of the substance, in a porcelain dish, drop two or three drops of pure hydrochloric acid, and warm gently. The green color comes immediately, but lasts only twenty-four hours if the amount be small. The green product of this reaction can be preserved, however, by dissolving it in a drop of chloroform and allowing it to dry. The color of this residue remains permanent.

The non-precipitation of the suspected substance by platinic chloride or the terchloride of gold gives us very important negative evidence, and permits of the elimination of almost all the alkaloids. The bromine reaction is also a very important one, but requires a considerable amount of the substance.

The process adopted by them in isolating digitalin from animal fluids is as follows. The fluid should be filtered, the clear filtrate rubbed up with the hydrate of lead, treated with an equal volume of 95 per cent. alcohol, filtered, and evaporated at a low temperature. When the residue has a syrupy consistency, it is shaken two or three times with an equal bulk of chloroform, which can be removed by a pipette, and allowed to evaporate spontaneously. If any fat remains in the residue, it can be removed by washing carefully with a little benzine, which acts but slightly on digitalin.

Digitalin is isolated from the tissues by nearly the same process, except that they are first extracted by shaking with 95 per cent. alcohol, the alcohol shaken with the hydrate of lead, filtered, the filtrate evaporated at a temperature below 40° C., the residue washed carefully with benzine to remove the fat, and then treated in the same manner as the alcoholic residue in the case of the fluids.

Hyoscyamin, as formerly obtained, is in the form of a mass more or less colored. By subjecting this substance, however, to a careful distillation in a current of hydrogen, M. G. Merck *(Journal de Pharmacie et de Chimie*, July, 1873, from *Neues Repertorium für Pharmacie*, Feb., 1873) has been enabled to obtain the pure alkaloid in the form of a colorless, oily liquid, resembling conia in appearance and odor. It is soluble in alcohol and ether, slightly soluble in water, and incompletely soluble in chloroform and benzine. When exposed to the air, it rapidly becomes brown, thicker in consistency, and has a disagreeable odor. It has a very alkaline reaction, and neutralizes acids to form very soluble salts, some of which were obtained in a crystalline form.

Investigations upon certain Alkaloids.—Heinrich Struve *(Fresenius' Zeitschrift*, 1873, ii. p. 164), in testing substances extracted from the organs of a body after death, discovered that solutions of colchicin, when exposed to direct sunlight, undergo such a change that the usual tests will no longer serve to detect that alkaloid. The substances tested were contained in two bottles, marked, respectively, "nicotin" and "colchicin." Tests applied to the former substance by a second

* Vide JOURNAL, July 10, 1873, p. 35.

chemist confirmed the presence of nicotin, while the latter responded to none of the tests for colchicin, although it had at first reacted perfectly with the reagents applied. In seeking for an explanation of this fact, Struve prepared two solutions of colchicin, and placed one of these in the dark, while the other was exposed five weeks to the direct rays of the sun. The specimen kept in the dark preserved its properties perfectly, while that exposed to the sun's rays no longer responded to the proper tests, and the colchicin thus treated lost completely the properties of an alkaloid.

Phospho-molybdic Acid as an Alkaloid Reagent.—This acid, so long well known as a reagent for ammonia, has also been known as a precipitating agent for the alkaloids, which are analogous in composition to ammonia, but the precipitates produced with the different alkaloids resemble each other so closely that it is impossible to distinguish certainly between them. The following results, however, obtained by Struve *(Ibid.)*, lead us to hope that it may prove a very valuable reagent in alkaloid chemistry, and that we may be able by its means to separate the alkaloids from impure solutions, and distinguish between them by the application of other and characteristic tests to the precipitates produced.

With brucia, it produces a yellow precipitate which, when treated with concentrated sulphuric acid, colors the acid red, which color changes quickly to a yellow. If sulphide of ammonium be added to this solution, sulphuretted hydrogen will escape, a dark brown precipitate be formed, and the fluid will become violet. Both of these reactions are characteristic of brucia.

With strychnia, it also produces a yellow precipitate which gives, with sulphuric acid, a yellow solution. This solution shows the characteristic play of colors due to strychnia, if treated with a crystal of potassic bichromate. If the precipitate is dried, it dissolves gradually in sulphuric acid with the production of a violet color. This solution also gives the play of colors with potassic bichromate.

With colchicin, it produces an orange-colored precipitate, soluble in concentrated nitric acid, with the formation of the usual violet color, which changes rapidly to a blue. The addition of water to this solution changes it to a yellow, which becomes red if rendered alkaline with liquor potassii. The dried precipitate is a greenish-brown mass, which dissolves in liquor potassii to form a yellow solution, while blue molybdic oxide separates.

With morphia, it forms a yellowish-brown precipitate, soluble in sulphuric acid, producing a dark blue solution, which, by warming, changes to a dark brown. After cooling the sulphuric acid solution, a drop of nitric acid renders the color lighter, changing it to a reddish brown. The precipitate reacts with iodic acid and starch in the familiar way. Liquor potassii produces with the precipitate a blue color, which changes quickly to a brown and then to an orange, which remains permanent, and is even rendered plainer by evaporation, orange-colored drops, which can be examined microscopically, forming in the liquid when concentrated. This last test will serve to detect morphia when mixed with quinia.

The Action of Sulphuric Acid and Sugar on some Alkaloids.—R. Schneider gives the following reactions *(Fresenius's Zeitschrift*, 1873, ii. p. 218, from *Poggendorf's Annalen*, Bd. 147, p. 128).

Morphia, if mixed with six or eight parts of sugar, and brought in contact with a drop of concentrated sulphuric acid, produces an immediate purple-red color. This color remains unchanged from one-quarter to one-half an hour, then gradually changes to a bluish violet, then to a bluish green, and, finally, to a dirty, yellow color. If moistened with a little water, the above changes take place rapidly. This reaction will detect from 0.1 to 0.01 of a milligramme. If it is necessary to test a solution for morphia, the best way is to dissolve as much sugar in a drop of the fluid as the latter will take up, and bring this solution into contact with a drop of sulphuric acid placed at its side. At the point of contact of the two drops, a rose-red color will be developed, more or less deeply tinged, according to the amount of morphia in the liquid.

Codeia behaves in the same way as morphia, only the test is more delicate, if a little water be added or the sulphuric acid is not so concentrated. The color begins to diminish after the lapse of one-half an hour, changing first to a dirty, bluish green, and, finally, to a yellowish brown.

Morphia and codeia can, however, be distinguished from each other, or, rather, separated from each other, by shaking an alkaline solution with chloroform, which will remove the codeia, but leave the morphia.

Narcein and narcotina show no characteristic reaction, and the same is true of the cinchona bases, strychnia, brucia, atropia, colchicin, emetia, and picrotoxin.

Aconitia treated in the above manner produces, at the point of contact of the two liquids, a beautiful rose color, which passes rapidly to a violet, and, finally, to a brown. This might be mistaken for the color produced by morphia or codeia, but the aconitia can readily be separated from morphia by its solubility in benzine or chloroform from an alkaline solution, and from codeia by the ready solubility of the latter in water. This reaction for aconitia is a valuable one, as it is the only chemical test for it.

Delphinin, if rubbed up with a drop of concentrated sugar solution, and a drop of sulphuric acid be allowed to fall in the centre of the solution, produces a yellow spot, which speedily becomes yellowish brown, and is gradually surrounded with a dirty green border. If, at this stage, a drop of water is dropped into it, the brown spot is converted into a green. This green color, which changes quickly to a brown, is very characteristic of the action of delphinin.

Chloroform as a Solvent and Reagent for the Vegetable Poisons.—Experiments of J. Nowak *(Jahresbericht über die Fortschritte der Pharmacognosie, Pharmacie und Toxicologie,* 1873) show that chloroform will remove from slightly alkaline solutions, quickly and completely, the following poisons:—Strychnia, quinia, quinidia, cinchonia, caffein, theobromin, emetia, atropia, hyosciamin, aconitia, veratria, physostigmin, narcotina, codeia, thebaia, nicotia and conia. Brucia, colchicin and papaverina are removed somewhat more slowly, sabadillin only after warming, and narcein only in very small quantities by chloroform from alkaline solutions. Picrotoxin is dissolved from acid solutions much more rapidly than from alkaline ones. Morphia and solania are removed neither from acid nor from alkaline fluids by chloroform.

All of the above substances, which are removed from alkaline fluids

by chloroform, can readily be separated from the latter, by shaking it with acidulated water, while the impurities, which have also been dissolved by the chloroform, remain.

Thus we have a very valuable reagent in chloroform, for obtaining these vegetable alkaloids from animal tissues in an almost perfectly pure state, and, when weighed amounts have been mixed with animal tissues and fluids, Nowak has been enabled frequently to isolate the entire amount in a state of great purity.

Bibliographical Notices.

Skin Diseases: an Inquiry into their Parasitic Origin, and Connection with Eye Affections, &c. By JABEZ HOGG, Surgeon to the Royal Westminster Ophthalmic Hospital, &c. London: 1873. Pp. 108.

"MY apology (if one be needed) for the publication of this *brochure*," states the writer of this book in his preface, "is simply that I have been unable to supply the demands of friends for copies of my papers 'On the Vegetable Parasites infesting the Human Skin.'" How the author's friends feel about its publication, we have no means of knowing; but we do feel that the medical profession, to which it is now presented, should not receive such a book, even with an apology. A writer who professes in these days to instruct others should have full knowledge of his subject, and judgment wherewith to manage it. Dr. Hogg seems to lack both.

His views may be briefly stated, as follows: The vegetation found in such affections as favus, ringworm, &c., is a secondary product, and they are due to a deranged state of health. They are, moreover, scarcely, if ever, cured by destroying the parasite, nor are the parasites even universally present in these affections.

These opinions are outside of the province of criticism, because there is no truth in them. Their answer may be found in the writings of all recent and competent observers; but farther notice of them here would take the time of reader and reviewer, and they are not worth it.

Dr. Hogg has also made experiments in the culture of the parasitic fungi. They were conducted much in the same way as peas are sown; and his deductions from them are as intelligent and reliable as those of the gardener who, finding weeds springing up with his peas, should attribute the whole growth in his beds to the seed he had planted.

If the reader cares to know more of the opinions of one so loose in his own observations, and so ignorant of those of others, who should have been his teachers, he may also find in this book writings concerning the germ theory of cholera; dust and disease, &c. J. C. W.

Thinkers and Thinking. By J. E. GARRETSON, M.D. (John Darby), Author of "Odd Hours of a Physician," &c. Philadelphia: J. B. Lippincott & Co. 1873.

THIS is certainly a remarkable book. The author is himself evidently a "thinker." A *critique*, such as the volume deserves, would require far more space than could be possibly accorded to it in the JOURNAL. We, therefore, shall not attempt a review, and can barely offer a notice. The author's style is terse, condensed, powerful; his logic

clear, his arguments persuasive. There is a somewhat affected—apparently—transposition of words, in his sentences, which makes the book, in many portions, rather hard reading. Indeed, no one need take it up for holiday amusement—it will require close attention in perusal—being by no means "light" reading; nor do we think it heavy, either—it is peculiar. All the ancient "thinkers" are marshalled forth, and duly inspected and discussed; and not a few of the moderns, also. It is a good and thorough examination—from Thales, Copernicus, Socrates, Plato, and all those men of mark, down to Compte, Darwin, Huxley, and other smaller "scientists" and "evolutionists."

Handsome and worthy tribute, also, does the writer pay to some we, perhaps, especially delight to honor—Emerson, Holmes, Whittier and—although not so near to us—"Ik Marvel." The only word, or expression, we can really take exception to, when "The Autocrat of the Breakfast Table" is spoken of, is the doubt hazarded as to whether he is in any wise a "cynic!" Not, surely, in any disagreeable sense. The cynics were, we believe, very wise and excellent people, originally; but now-a-days, by a cynic, we fear, is nearly always understood a harsh, mean, crabbed, vinegary sort of person. Is it not so? Of "Ik Marvel," he speaks in terms of real affection. "With ever responsive natures listen to that philosopher of open hearts, Ik Marvel. Never absent from our gatherings is this delightful thinker. Over and again, we ask him to repeat to us that sweet dedication to 'Mary;' over and again, we compel him to speak that freshness which went with him through Illyria, and which was all ablaze with careless happiness when the logs blazed on the hearth of the country house."

If there is one special thing and word that, as it were, haunts us, throughout the book, it is "correlation." We once read a book on the "Correlation of Ideas," and our small modicum of the latter has been in confusion ever since! Reader, you should "think" a good deal before and after perusing this book. We like its ending; see if you do not:—"But our discussions concerning location never amount to anything; for, as each makes search to example his own preference, we are, of necessity, led to perceive that hearts, rather than heads, it is, which make homes."

The book is well printed on excellent paper. W. W. M.

A Handbook of the Theory and Practice of Medicine. By FREDERICK T. ROBERTS, M.D., Assistant Physician and Assistant Teacher of Clinical Medicine at University College Hospital, &c. &c. Philadelphia: Lindsay & Blakiston. 1874. Small 8vo. Pp. 1052.

THIS work is intended mainly for the use of students, and hence differs in its plan from that of most treatises on medicine. It is intended to assist the learner in acquiring the principles and the practice of his art by teaching him the best methods of clinical investigation, as well as by describing the diseases which he will meet with.

It is divided into three sections. The first, which is introductory, after a few good instructions on the method of "case-taking," treats generally of the etiology and semeiology of disease, and of diagnosis, prognosis and treatment. These chapters are short, but very clear, and we do not see that anything important has been omitted.

The second section treats of *General Pathology*, including hyperæmia or congestion, dropsy, hæmorrhage, inflammation, hypertrophy, atrophy, degeneration, and fever or pyrexia. These chapters are brief; but by leaving aside all theories, and confining himself to facts, or to the opinions of the highest authorities, Dr. Roberts is able to give a very clear and interesting account of the various morbid processes, and to state the most recent views which are now generally accepted, at least in England. The phenomena of the process of inflammation, for instance, are well described, and, without going into minute details, the opinions of the most eminent pathologists of the day are related, as to its nature and origin. The general treatment of some of these morbid conditions or processes is also given.

Section third is devoted to individual diseases and their clinical investigation. Here we meet with an innovation on the method usually adopted in treatises on medicine. The descriptions of the several organs or systems are preceded by an outline of clinical phenomena peculiar to each, and of the different modes of physical examination required for their investigation. Thus, the account of continued fevers is preceded by a chapter "on the clinical investigation of acute febrile cases," which includes a good account of the use of the thermometer as a means of diagnosis and prognosis. Forty pages are devoted to the subject of the physical examination of the chest, before the diseases of that region are treated of; they comprise an excellent summary of auscultation and percussion, and really include almost everything a student ought to know on the subject of the application of those methods of diagnosis to the diseases of the lungs and heart. The general clinical characters of the diseases of the respiratory organs, especially dyspnœa, apnœa, cough and hæmoptysis, are also fully treated of. After these preliminary chapters, come the different diseases of the thoracic organs, each of which receives due attention.

In the same way, the descriptions of the organs of circulation, of the liver, of the kidneys, of the nervous system, &c., are preceded by an account of the clinical phenomena by which each is characterized, of the means whereby they are investigated, of their general diagnosis, prognosis and treatment. By this means, a great deal of repetition is avoided, and the relationship or interdependence of the diseases of these organs or systems is made clear.

We observe with satisfaction, throughout the book, that the latest views which have obtained acceptance to any degree are at least alluded to, if not discussed, though in some cases their adoption or rejection is left to the reader's own convictions. Thus, for instance, on the subject of phthisis, the so-called "German ideas" are presented to the reader, especially those of Niemeyer; while the difficult questions relating to the nature and pathology of tubercle are clearly stated, and the views of the most eminent authorities of the present day are given.

The portion of the work devoted to diseases of the nervous system contains a very complete summary of what is known on that subject. The clinical characters of these diseases are very fully detailed, and will repay attentive study. All the most recent methods of clinical investigation are treated of, including the examination of the retina with the ophthalmoscope. In the department of diagnosis, the student is made acquainted with all the known tests on this difficult sub-

ject. Then follows the description of general nervous diseases, hysteria, hypochondriasis, epilepsy, chorea, hydrophobia, tetanus, alcoholism (including delirium tremens), &c. After these, come the organic diseases of the brain and of the cord, and their membranes. A chapter on the general diagnosis, prognosis and treatment of organic nervous diseases follows, which may be read with much profit. In a supplementary chapter are briefly treated some of the rarer diseases of the nervous system :—wasting palsy, writer's cramp, shaking palsy, infantile paralysis, epidemic cerebro-spinal meningitis and glosso-pharyngeal paralysis.

The few specimens we have selected will give the reader a general idea of the scope and the value of Dr. Roberts's work. They are a fair sample of the whole, and our opinion of it is one of almost unqualified praise. The style is clear, and quite free from the dryness which we so often meet with in condensed works. The amount of useful and, indeed, indispensable information which it contains is marvellous, considering it is not a treatise, but a manual of reasonable dimensions. Hence, although intended chiefly for students, it will prove of great value to the practitioner, especially to one who desires to keep abreast of the advancement of medical science, but who is prevented by the pressure of constant professional labor from studying more elaborate works, or from reading and digesting the vast amount of periodical medical literature which is daily issued from the press. Lastly, it should be said that the book is of convenient size, and is beautifully printed, in a clear type and on white paper. We heartily recommend it to students, teachers and practitioners.

The Venereal Disease of Horses.—It is not generally known that there is a contagious venereal affection among horses. This malady, which has received a number of names, such as the *epizootie chancreuse, maladie du coit, typhus venerien, syphilis du cheval*, &c., by the French veterinarians, and the *beschälkrankheit* and other names by the Germans, was unknown, it seems, before 1796, when Ammon observed it in North Persia. It is believed to have been seen in Russia before that period, and Renner witnessed its effects in the Imperial stud. It always prevails with most severity in Southern Russia. It has spread since it was first observed to various parts of Prussia, Hanover, Bohemia, Hungary, Silesia, Switzerland, Wurtemburg, and France. It has shown itself in Algiers since the French occupation of that country. The symptoms are said to be local at first, somewhat resembling those of human syphilis; the secondary effects are cutaneous eruptions, nervous affections, paralysis, and a lingering death. Its contagious character has been fully ascertained, and legislative measures have been successfully adopted in some countries to check its ravages.—*Medical and Surgical Reporter.*

Sinapisms.—In making a mustard plaster, use no water whatever, but mix the mustard with the white of an egg, and the result will be a plaster that will draw perfectly but will not produce a blister even upon the skin of an infant, no matter how long it is allowed to remain upon the part.—*The Medical Brief.*

Boston Medical and Surgical Journal.

Boston: Thursday, January 8, 1874.

The return of the new year naturally reminds the physician that, among other things, he is of the earth, earthy, and that, in common with the rest of mankind, he has some very human needs, to satisfy which, he must make demands on the world's purse. For he now balances his accounts, and is apt to become sordid for, at least, once in the year. He counts up his actual receipts and makes out his bills receivable, if he be a man of systematic habits and thrifty turn of mind. We cannot say what proportion of the practising physicians suffer these new year experiences to their full degree, but it is very likely that the number who keep accounts, as strictly as the merchant does, is in a minority hardly respectable. Assuming, then, that doctors are generally lax in the keeping of their business accounts, and that the great majority can very properly have it said of them in their obituary notices, "He died in only moderate circumstances, because he did not enforce the payment of his bills," we have a word to say by way of homily to the doctors who think it wrong to introduce anything of the spirit of trade into their profession.

This idea of the evil of making money out of practice is something of a bugbear, in the name of which too many of us let debts go by default. It will do well enough for the man who starts in business without any of the pinching of fate in prospect, to argue that medicine is a liberal profession and not a trade. The fruit of this argument will not, however, serve as well as legal tender in the payment of bills for provisions and groceries. It has not yet come to light that the doctor is a favored individual in the eyes of ordinary tradesmen and mechanics; and we presume that physicians' families are blessed with ordinary appetites which must be satisfied without discount, and that the wear and tear of physicians' domestic lives expose them to the average expenditure of hard cash. So that, granting all this necessity, the duty of physicians demands that they should regularly collect from their patients the adequate pecuniary reward for their professional services.

Let it not be understood, however, that a physician's success in life is to be measured solely or mainly by the number of dollars he has hoarded. That is not the question. If that were the spirit of our argument, we should surely be on the wrong side. But we mean that it is not sinking the profession into a trade to look out for the proper, honorably earned fee. To do less, to keep accounts on the easy-go-

lucky system, to be grateful for any fish that come to the net, but too unthrifty to use the net actively, is demoralizing both to the physician himself and to his patrons, contrary to a wise economy and prejudicial to independence of action. After all is done that can be fairly expected in the direction of satisfying the *auri sacra fames*, there will be still left a great field wherein any doctor can exercise the charitable instincts which so creditably characterize his profession.

We know the difficulties of the case, and that it is much easier to let "that little bill" drop if the payment is procrastinated by the debtor; we know that the words of Dr. Luke Lundin—"*Præmia cum poscit medicus, Sathan est*"—are too often literal verity in practice; but we also believe that something more of mercantile thrift infused into medical practice will work small ill in the long run. The laborer is worthy of his hire.

It is rather a curious fact, that the Trustees of the City Hospital advertise for applicants to fill its offices. It is another curious fact, that the Trustees of this institution do not appoint to those offices the candidates whose professional records stand the best.

Political friendship; sectarian alliance; qualification; which is the touchstone of success for applicants?

Is it not almost time for the hospital to be in the hands of the Board of Health, or of a board of trustees independent of aldermen and councilmen?

The *Lancet*, in a late article, makes the statement that Shakspeare in none of his plays has held up the medical profession to ridicule. In the "Merry Wives of Windsor" he makes fun of poor Dr. Caius, but the joke is at the expense of the Doctor's queer English, not his profession. On the other hand, Molière has never pictured a doctor except to laugh at him, and, from what we know of the state of the profession in his time, his ridicule was richly deserved. We have no reason to complain of our treatment at the hands of modern dramatists. Of late years, the doctor is usually represented as the man of shrewd discrimination and strong sense of justice, who turns up in every act to confound the machinations of the wicked characters; and, if his medical treatment be somewhat startling, and his operations such as would be impracticable off the stage, his intentions at least are admirable, and his results enviably successful. When he is laughed at now-a-days, the fun is almost always good tempered. In a play called "Alone," which is being acted in London, there is a Doctor Mucklethwaite, who plays an important part. The character is well sustained, and the young medical man whom the actor represents, with a hat of irreproachable glossiness and an occasional cigar, presents an amus-

ing contrast to the formal physician of the old school, with his wig and snuff-box and gold-headed cane, and there is much truth in the portraiture. The doctor is represented quite as much at home in unveiling the treachery of a supposed friend as in restoring sight to a blind old colonel. Of the operation by which this last result is achieved, it is unfortunate that no details are given, as it could not but be an exceedingly useful addition to the resources of surgery.

The Hospitals.

MASSACHUSETTS GENERAL HOSPITAL.

(Saturday, December 27, 1873.)

OPERATIONS were performed in the following cases:—Disease of Elbow-joint, Tumor of Breast, Tumor of Upper Jaw, Tumor of Leg, Painful Cicatrix, Hydrocele of Neck. During the week, Hydrocele of Neck and a Railroad Injury of the Foot.

Disease of Elbow-joint; Amputation.—A male patient had suffered from more or less inflammation in the joint for seven months. In September, abscesses formed, which were opened. Since then, his general health has failed. Dr. Cabot made a straight incision over the olecranon, intending to give him the benefit of excision, but the disease was found to be so extensive that amputation of the arm was performed.

Recurrent Cancer of the Breast—in a woman 50 years old, and of the size of an English walnut. The disease had re-appeared within six months in the cicatrix of a previous operation. The tumor was ulcerated, painful, and involved the skin, but was not adherent. Excision was performed by Dr. Bigelow.

Cancer of Upper Jaw—in a woman 50 years of age. Painful, and of six months' duration. It occupied the antrum of the left side, occluded the nostril and projected from the hard palate into the mouth. Dr. Cabot made a curved incision from the commissure of the lips to a point above the zygomatic arch, and divided the upper lip vertically to a point near the inner canthus of the eye. The flap was raised, the nasal and malar processes of the superior maxilla and the hard palate were successively divided with bone forceps. The growth, which largely involved the bone, was broken and cut away from its remaining attachments. The bleeding vessels were tied and the wound closed with sutures.

Tumor of Leg; Excision.—The patient, a man of 60 years, had, some months since, received a blow upon his leg. After the use of irritating applications, a pimple appeared, which rapidly increased, with pain and disability. Ulceration had recently converted this growth into an epithelioid ulcer, with thickened edges, and occupying an area three by four inches. Dr. Bigelow encircled the mass by a deep incision and dissected it from the sound tissues, remarking that it would probably return, but that the patient was not prepared to lose his leg at present.

Painful Cicatrix—following amputation of thumb. Dr. Cabot opened the stump, and found that a sharp corner of bone caused the pain. This was removed.

Hydrocele of Neck—in a man, of the size of an orange, and situated in the superior carotid triangle, underneath the edge of the sterno-cleido-mastoid muscle. Dr. Bigelow dissected down to the cyst and punctured it with a trocar. About three ounces of a creamy fluid were evacuated and a seton inserted. The presence of cholesterine identified the lesion as hydrocele of the neck.

Hydrocele of Tunica Vaginalis, double.—Punctured, and seton passed through the sac by Dr. Bigelow, who remarked that this old method required

careful watching lest the inflammation be overdone; that no single method was best for all hydroceles, but that, where the sac was thin or the affection recent, caution was desirable in effecting a radical cure, lest the scrotum slough, as it sometimes does in such a case after incision. On the other hand, in an old and thick hydrocele, it may be desirable to dissect out the front of the sac. It is not easy, by injection or any other method, to ensure always a radical cure, the difficulty being to produce inflammation enough and not too much. Injection, properly performed, is perhaps most widely applicable.

Hydrocele of Neck—of one one year's duration, in an adult, unaccompanied with pain, situated in the superior carotid triangle, fluctuating and not tender. Dr. Bigelow punctured it, and removed about four ounces of a coffee and milk colored fluid containing cholesterine. The puncture was enlarged to admit the finger to a cavity extending beneath the inferior maxilla and downward to the thyroid cartilage. It was separated from the bifurcation of the carotid by a thin membrane only. A counter-opening was made and a seton passed through the cavity, to remain until obliteration was effected. In both cases of this affection, its short duration had raised the question of abscess, but the presence of cholesterine was conclusive in determining its cystic origin.

Railroad Injury of Foot; Amputation.—The tarsal and metatarsal bones were comminuted, and there was extensive laceration of the soft tissues of the foot. Dr. Cabot amputated at the junction of the middle and lower thirds of the leg by the circular method. H. H. A. Beach.

BOSTON CITY HOSPITAL.

Last Friday, Jan. 2d, surgical operations were performed as follows:—

A boy of ten years was presented with the history and symptoms of Congenital Phimosis—a long and apparently contracted prepuce, any attempt to retract which was attended with much distress. There was said to be difficulty of micturition, also. The parents of the child desired that he be circumcised, and brought him to the hospital for that purpose. When, however, the patient had been fully etherized, it was found that there was no phimosis; the glans could be nearly uncovered, and a full stream of urine was discharged from a normally located urethra. Upon the upper surface of the glans, the prepuce was adherent a little distance in front of the corona and over about half the circumference. This adhesion was probably a remnant of the condition which exists in fœtal life, wherein the prepuce and the glans are not yet separated. In the present case, the prepuce was set entirely free by a touch with the scalpel, aided by a little forcible retraction.

Dr. Cheever spoke, in connection with this case, of two cases within his knowledge, in which, by the use of caustics in the hands of charlatans, for the treatment of supposed venereal disease, the prepuce and glans had become wholly adherent, the result of the induced balanitis.

Dr. Cheever performed Tenotomy in a case of Talipes Varus, in a young woman. The same patient had had tenotomy of the hamstring tendons of the same side performed three weeks before, to relieve a contracted knee.* The operation had been successful in relieving the contraction, and the limb was now nearly straight. To relieve the varus, Dr. Cheever divided, subcutaneously, the tendons of the tibialis posticus and flexor longus digitorum, the tendo Achillis and the plantar fascia. This procedure allowed the foot to be straightened to a very considerable degree; but Dr. Cheever pointed out the fact that, in the twenty years during which the patient had trodden on the outer and upper side of the foot, the astragalus and other bones of the tarsus had become conformed to the abnormal condition, so that tenotomy did not offer complete success. He proposed, after four days, to apply a shoe to the foot, supports from which should reach above the knee, so as to keep that joint extended while the sole was maintained in its proper position.

A case of Fissure of the Anus, with Internal Hæmorrhoids and growths

* Journal, Dec. 9th, 1873, p. 622.

about the margin of the anus, resembling old condylomata, was next operated upon by Dr. Cheever, the patient being an adult female. The hæmorrhoids were touched through a speculum with nitric acid and at once washed with a saturated solution of carbonate of soda. The condylomatous growths were removed with scissors. The sphincter ani was divided at its latero-posterior part, at one side of the fissure which was directly in the centre, posteriorly.

On Tuesday, December 30, Dr. Cheever operated before the class on a foot which had been caught between a swinging derrick and a wall. The outer third of the foot was crushed. There was a deep, lacerated wound on the dorsum, with compound fracture of the fifth metatarsal bone, and partial denudation of the fourth metatarsal bone, without fracture. A deep, lacerated wound appeared in the sole, which communicated with the one on the dorsum.

Dr. Cheever called attention to the fact that the chance of recovery, after injuries or disease, was better on the outer, than on the inner side of the foot. This was due to the larger size of the bones, and to the smaller extent of synovial surfaces involved. The fourth and fifth metatarsals articulate solely with the cuboid, in a single synovial sac; but the second and third metatarsals articulating with the small cuneiform bones, this joint forms part of an extensive synovial sac, which includes the cuneiforms and the front of the scaphoid bone. He was therefore encouraged to hope that, by the removal of the shattered fifth metatarsal at the junction with the cuboid, subsequent suppuration could extend no farther than the articulation of the contiguous fourth metatarsal, and could not penetrate the tarsus. He accordingly removed the smallest toe and the fifth metatarsal bone back to the cuboid, and covered in the wound partly with the torn flap of skin. Should this flap slough off, as was not unlikely, he should trust to repair by granulation.

F. W. DRAPER.

Correspondence.

MESSRS. EDITORS,—Professor Verneuil has recently claimed, as new, an expedient for saving blood and facilitating dissection in the removal of the upper and lower jaw bones. The alleged novelty consists in dissecting the tumor and dividing the bone, before opening the buccal mucous membrane, so as to keep the blood from the cavity of the mouth until the last moment. A somewhat extended correspondence upon this subject, between Prof. Verneuil and Daniel Mollière, will be found in the *Gazette Hebdomadaire de Médecine et de Chirurgie* for September 12th and 19th, 1873. (See, also, proceedings of the Société de Chirurgie for July 2d, 1873, published in the same journal, and Report on Surgery, Boston Medical and Surgical Journal for December 18th, 1873.)

That Prof. Verneuil can lay no claim to novelty in this method of removing the lower jaw, is shown by the following extracts from the Records of the Massachusetts General Hospital.* The first is of the date of June 15th, 1850 (vol. 44, p. 132, an operation of Professor H. J. Bigelow); the patient was a girl of 14 years, with a tumor of the lower jaw, requiring the removal of this bone from near the angle, on one side, to the articulation on the other.

"This large flap was dissected upwards in front as far as the mucous membrane of mouth, as also the masseter muscle. Posterior surface of jaw also exposed as far as floor of buccal cavity. This dissection being completed, it remained only to open the cavity of the mouth, which was done by a vertical incision through the lower lip on median line, and rapid dissection of

* See, also, the report of an operation performed by Nélaton, in 1852.

"In performing the operation, in order to lay bare the bone, M. Nélaton said he would not make an incision from the commissure of the mouth; this produces a great loss of blood, and in this case he desired to give chloroform. The whole exterior face of the tumor would be exposed without entering the cavity of the mouth."—*Clinical Lectures on Surgery*, by M. Nélaton, Philadelphia, 1855.

mucous membrane at the base of alveolar processes on each side, a ligature having been passed beneath tongue to prevent it from slipping down throat. Until this time, the buccal cavity had remained intact, and blood had been excluded from it" . . . . . "The principal features of the operation were the preservation intact of the buccal cavity, during the external dissection, and the non-division of the facial nerve."

A second record is of date June, 1857, vol. 175, p. 176, likewise an operation of Bigelow. The patient was a man of 30 years, with a tumor of the lower jaw.

"Ether having been administered, the angle of the jaw was denuded for examination, and was found to lose itself in ascending into the substance of a semi-ossified mass with which it was continuous. It only remained to extirpate this part of the lower jaw bone. The incision was continued forwards toward the angle of the mouth and backward toward the lobe of the ear. The tumor was partially denuded without, the bone divided in front of the angle, the mucous membrane of the mouth being left uncut till the last moment to prevent the blood from entering the throat."

This expedient is no doubt of value in the removal of the lower jaw, where the principal part of a long operation generally consists in dissecting the soft parts including the muscles, from the bone. For the division of the latter, a few moments suffice; so that the buccal mucous membrane can be easily left intact, until the end of the operation. Not so, however, in the excision of the upper jaw, for which Prof. Verneuil also claims the advantage of this method. Here, it takes but a few moments to dissect up the outside flap from the tumor. The time required for this operation is chiefly consumed in the separation of the tumor and its bony attachments. This is often bloody, and can be best, we had almost said only, done when the cavity of the mouth is laid freely open at the commencement of the operation.

Boston, Dec. 22, 1873. H. H. A. BEACH.

SICKNESS RATES.

MESSRS. EDITORS,—Will you allow me to use your columns for the purpose of asking our professional brethren to try to discover what proportion of our whole population is constantly sick? This must be a difficult question to answer in cities and large towns, where there are many physicians, but in towns of from one to three or four thousand people, it seems to me that, attention being given to the subject by the resident practitioners, a very close approximation to the absolute truth may be reached. There are not a few towns of a thousand inhabitants or thereabouts, with one resident physician who is acquainted with the condition of health in every family. We already know, through registration by the town and city clerks, the comparative death-rates in country and city, in the different counties, by the sea-shore and in the interior of the State, in factory towns and in crowded cities. With these facts well established, and a careful note of the sickness-rates in a large number of small towns, we could estimate with a near approach to certainty the proportion of persons constantly sick throughout Massachusetts and New England.

The value of such information in statistical inquiries, in all efforts to improve the health (and wealth) of the people, is apparent. It may be a long time yet before any plan can be devised which will give us the comparative prevalence of such special diseases as cannot be measured by their mortality; but we may readily discover, through the careful observation of physicians, how many are at all times disabled by every form of bodily ailment. We are quite aware that very positive statements concerning the ratio of the sick to the well may be found in the writings of physicians and sanitarians, both in the United States and in various European countries, but they seem to be only guesses, and they differ widely from each other. If we can find out the sickness-rates of the people of New England, it will be a real addition to sanitary knowledge. Any information on this subject will be received with many thanks by the undersigned. GEORGE DERBY, M.D.

102 *Charles Street, Boston,* Dec. 29, 1873.

Obituary.

Dr. Anson P. Hooker.

Death has removed from our midst Dr. Anson Parker Hooker—a colleague respected and beloved by all those of his professional brethren who had the privilege of calling him friend. We are glad to be able to present the following tribute to his memory paid by Surgeon-General Dale in his annual report, just delivered to His Excellency, the Governor:—

On the last day of the year just closed, it was my painful duty to inform your Excellency of the death of Colonel Anson Parker Hooker, of your staff, and Assistant Surgeon-General of the Commonwealth.

Sprung from a line of physicians distinguished in the profession and honored in the community, he was a graduate of Harvard University, class of 1851, and a member of the Massachusetts Medical Society, 1855.

On the breaking out of the late rebellion, he was one of the first among our young surgeons to offer his services to his lamented chief, the late Governor Andrew.

Early appointed to the supervision of the camps for recruits, he was commissioned surgeon of the 26th Mass. Vols., Sept. 10th, 1861, serving with honor and distinction in the Department of the Gulf, until he was compelled, through exhausting disease, to resign his commission and return home, June 18th, 1862. This disability continued upon him through the remaining years of his life and hastened his death.

Recovering partially from this sickness, he was again placed in the medical charge of the camps of the State, and commissioned, by Gov. Andrew, Assistant Surgeon-General, May 26th, 1863, serving also upon the Staff of Governors Bullock, Claflin and your Excellency.

He discharged all the trusts imposed upon him with rare ability and great fidelity. Ingenuous and truthful in his nature, he won the love of all with whom he was associated, by the amiability of his character and the rare excellence of his disposition. With a generous heart and an opened hand, he succored his comrades in distress, and won the love and respect of the poor by his disinterested and kind ministrations in their service. He was a wise and safe counsellor and a faithful and true friend.

In this Department, he was warmly loved and respected. In common with my professional brethren and associates at these headquarters, I mourn his loss, and offer this imperfect tribute to his memory.

Medical Miscellany.

The New British Pharmacopœia will be issued from the press in revised form in the present month.

"Sermons for the Insane" is the title of a new work just announced in England.

Recueil d'Ophthalmologie is the title of a quarterly journal recently brought out in Paris, by one of the leading oculists of that city, Dr. Galezowski.

Appointments.—W. E. Boardman, M.D., and E. W. Aiken, M.D., have been appointed physicians to the newly instituted out-patient department of the City Hospital for the treatment of the diseases of women.

Quack Medicines.—"Harrison's Peristaltic Lozenges" are advertised by circular, with a recommendation attached, purporting to be quoted from the Journal. We wish the profession and the public to understand that we do *not* recommend this, or any other quack medicine.

REMOVAL OF THE BITTER TASTE OF QUININE.—It is not generally known that the bitter taste of quinine may be effectually concealed, while the efficacy of the drug is retained, by combining it with tannic acid. Ten grains may thus be deprived of its taste by one and one-half grains of the acid.

FORMULA FOR BURNS.—Yellow wax, melted and strained, ℥j.; linseed oil, raw, ℥iij.; tannin, ℥j.; subnitrate of bismuth, ℈j. Heat the wax in a clean, tin vessel, add the oil and stir till they are thoroughly incorporated, then remove from the fire and stir till cold, adding first the tannin, and lastly the bismuth. To be applied on pledgets of lint to the surface of the burn, which should be previously carefully cleansed.—*Canada Medical Record.*

ENGLAND AS BAD AS AMERICA.—According to the *Lancet*—"A correspondent is offended by having received two copies of a pamphlet on the virtues of a certain article of medicinal diet. Let him be thankful that he has not received three. If books will not sell, what can the authors do with them but give them away?"

NOTES AND QUERIES.

THE AMERICAN MEDICAL ASSOCIATION, says the *New York Medical Record*, "does not seem to have any wires to pull; it is simply led by the nose."

IN answer to the inquiries made by X. Y. in the "Notes and Queries" of the JOURNAL for December 18th ult., a correspondent informs us that when a physician is summoned by a police officer to attend any case, medical or surgical, the city is the debtor. If the physician so summoned will send to the police captain of the station, to which the officer summoning belongs, a bill for the service rendered, made out against the city and detailing the time and circumstances of the summons, he will be waited upon in due season by a messenger with the cash. The City Physician gets no perquisites of this kind, and is paid nothing beyond his regular salary. Moreover, he is not obliged by the ordinance to attend any cases of sickness except of persons held as prisoners or of those at the temporary home.

With regard to the witness-fees of physicians, there is no provision in law or otherwise which favors doctors in this respect. When summoned as ordinary witnesses to testify to facts, they must expect the treatment and recompense of ordinary witnesses. If they are summoned as experts to testify in matters of opinion, they get experts' fees. It is in the power of the counsel who summons to make the stay of the witness long or short in the court-room; generally, the counsel are quite ready to favor physicians and to dismiss them with the least delay, if requested to do so.

Now that somebody has answered Mr. Gum Lancet, will Mr. Gum Lancet, or somebody else, give us the other side, and oblige ME.

DIED,—In East Cambridge, Dec. 31st ult., Dr. Anson P. Hooker, aged 41 years.—In this city, 2d inst., Alexander Thomas, M.D., class of 1822.

MORTALITY IN MASSACHUSETTS.—*Deaths in seventeen Cities and Towns for the week ending December 27, 1873.*

Boston, 126—Charlestown, 5—Worcester, 15—Lowell, 24—Milford, 3—Chelsea, 6—Cambridge, 11—Salem, 6—Lawrence, 9—Springfield, 6—Lynn, 6—Fitchburg, 4—Newburyport, 4—Somerville, 4—Fall River, 21—Haverhill, 3—Pittsfield, 3. Total, 256.

Prevalent Diseases.—Consumption, 48—scarlet fever, 29—pneumonia, 23.

GEORGE DERBY, M.D.,
Secretary of the State Board of Health.

DEATHS IN BOSTON for the week ending Saturday, Jan. 3d, 153. Males, 73; females, 80. Accident, 1—apoplexy, 5—inflammation of the bowels, 1—disease of the bowels, 1—bronchitis, 8—disease of the brain, 4—congestion of the brain, 1—cancer, 6—cerebro-spinal meningitis, 2—cyanosis, 3—consumption, 33—convulsions, 4—croup, 1—debility, 7—dropsy of the brain, 1—diphtheria, 2—epilepsy, 2—erysipelas, 3—scarlet fever, 7—typhoid fever, 4—bilious remittent fever, 1—disease of the heart, 10—hæmorrhage, 1—disease of the hip, 1—disease of the kidneys, 3—congestion of the lungs, 3—inflammation of the lungs, 10—marasmus, 5—old age, 4—paralysis, 2—pleurisy, 1—premature birth, 2—purpura hæmorrhagica, 1—rheumatism, 2—tumor, 1—whooping cough, 3—unknown, 7.

Under 5 years of age, 53—between 5 and 20 years, 11—between 20 and 40 years, 33—between 40 and 60 years, 23—over 60 years, 33. Born in the United States, 111—Ireland, 26—other places, 16.